Maintaining a Sequence

Time Limit: 2.0s **Memory Limit:** 256M

Please write a program that maintains a sequence, supporting the following 6 operations:

Operation	Input Format	Description
1. Insert	`INSERT posi tot` c_1 c_2 ... c_{tot}	After the $posi$-th number in the current sequence, insert a total of tot numbers: $c_1, c_2, \ldots, c_{tot}$. Insertion to the beginning of the sequence will have $posi$ equal to 0.
2. Delete	`DELETE posi tot`	Starting at the $posi$-th number in the current sequence, delete a total of tot consecutive numbers.
3. Modify	`MAKE-SAME posi tot c`	Starting at the $posi$-th number in the current sequence, change all the values of tot consecutive numbers to c.
4. Reverse	`REVERSE posi tot`	Starting at the $posi$-th number in the current sequence, reverse the order of tot consecutive numbers.
5. Get Sum	`GET-SUM posi tot`	Starting at the $posi$-th number in the current sequence, output the sum of tot consecutive numbers.
6. Max Sum	`MAX-SUM`	Output the largest sum of any (non-empty) consecutive subsequence of the current sequence.

Input Specification

The first line of input contains two integers N and M, where N is the initial length of the sequence and M is the number of operations.

The second line of input contains N integers, describing the initial sequence.

For the next M lines, each line will contain a command in one of the formats described above.

Output Specification

For each `GET-SUM` or `MAX-SUM` operation in the input, output the result of the query on a separate line.

Sample Input

```
9 8
2 -6 3 5 1 -5 -3 6 3
GET-SUM 5 4
MAX-SUM
INSERT 8 3 -5 7 2
DELETE 12 1
MAKE-SAME 3 3 2
REVERSE 3 6
GET-SUM 5 4
MAX-SUM
```

Sample Output

```
-1
10
1
10
```

Constraints

You may assume that at any given time, the sequence will contain at least 1 number.
The data in the input is guaranteed to be valid, and will always refer to existing positions in the sequence.

In test data worth 50% of the points, the sequence may contain up to $30\ 000$ numbers at any given moment.
In test data worth 100% of the points, the sequence may contain up to $500\ 000$ numbers at any given moment.

In test data worth 100% of the points, the value of any number in the sequence will be in the range $[-1\ 000, 1\ 000]$.
In test data worth 100% of the points, $M \leq 20\ 000$, the sum of all inserted values will not exceed $4\ 000\ 000$, and the input will not exceed 20MB.